ACCELERATOR DIVISION ADMINISTRATIVE PROCEDURE

ADAP-06-0021

RADIO FREQUENCY SUPPORT DEPARTMENT MANAGEMENT PROGRAM PLAN IN SUPPORT OF THE FMI PROJECT:

A Specific Quality Implementation Plan

RESPONSIBLE DEPARTMENT RADIO FREQUENCY SUPPORT DEPARTMENT

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TABLE OF CONTENTS

1.0 PURPOSE AND SCOPE

1.1 Purpose

The purpose of this "RF Department (RFD) Management Program Plan (MPP) for the FMI Project" is to describe the RFD functions and organization and its implementation, for its contributions to the Fermilab Main Injector (FMI) Project, of Quality Assurance Criteria 1 through 10, as stated in the Fermilab Quality Assurance Program (dated April 1, 1992), and in conformance with the Accelerator Division (AD) MPP, ADAP-06-0001, Rev.1), and in compliance with DOE Order 5700.6C (dated June 21, 1991).

1.2 Scope

The description and requirements of this plan are generally applicable to all activities of the RFD in support of the FMI Project.

2.0 RFD FUNCTIONAL ANALYSIS.

2.1 RFD Terminal Objectives

TO.1 To operate the Main Ring and Tevatron RF systems and associated equipment for Accelerator operation.

TO.2 To maintain high level RF equipment common to all Fermilab circular accelerators.

TO.3 To improve high level RF equipment to enhance reliability and performance.

TO.4 To provide RF engineering for accelerator related research and development.

TO.5 To implement procedures and controls as required by DOE regulations and adopted as Laboratory Management and ES&H policies.

2.2 RFD Subordinate Objectives

SO.1 To direct GEM and other minority students in work related learning programs.

SO.2 To provide RF support for Accelerator Systems Departments.

3.0 RFD ORGANIZATION

The roles, responsibilities and authorities of leadership positions in the RFD assigned to the FMI project will be described in detail in the RFD MPP. An RFD organization chart including the names of all personnel in the RFD as well as asignments to the FMI project is maintained in the RF Department.

The responsibilitiy of the FMI Project Level 3 Manager for WBS 1.1.4 (RF Systems) is to accomplish L3M responsibilities listed in FMI PMP, page 16.

4.0 RFD SPECIFIC QUALITY IMPLEMENTATION PLAN FOR THE FMI PROJECT

4.1 CRITERION 1 - PROGRAM

4.1.1 This Department MPP is based on the April 1, 1992 Fermilab Quality Assurance Plan (FQAP), on the AD MPP, and on the FMI MPP.

4.1.2 The FMI mission statement has been documented in the approved FMI Project Plan, a DOE document dated May 1992. The objectives of the FMI project are to design, construct, commission, and operate a 150 GeV accelerator.

4.1.3 The technical component requirements for the RF systems have been documented in the FMI Title 1 Design report dated august 1992.A list of tasks related to the FMI Project that have been assigned to RFD employees is to be found in the RF Department.

4.1.4 The organizational structure, functional responsibilities and levels of authority for the RFD, and the responsibilities of the FMI Project L3M for WBS 1.1.4 have been addressed in Section 3.0 above.

4.1.5 The description of all organizational interfaces with other organizations at Fermilab is fully covered in the FMI Project MPP, Section 4.1.4. This material applies equally to the FMI Project MPP and the RFD MPP and is not repeated here.

4.2 CRITERION 2 - PERSONNEL TRAINING AND QUALIFICATION

4.2.1 In-house training is provided to insure that an appropriate level of skills, knowledge, expertise, and experience are available to accomplish the stated mission and subordinate objectives. Training may come from several sources such as mentoring provided by physicist, engineers, supervisors, lead personnel, consulting firms, manufacturers' operating manuals, and other sources.

Records of training received by RFD members with assigned responsibilities for the FMI project are to be found in the RFD office.

Supervisors within the RFD are chosen by the department head. These personnel are chosen based primarily on the basis of their technical abilities. If deemed useful by the department head, an individual supervisor may be requested or required to attend the Supervisory Development course taught by the Laboratory Services Section. Other training or education, oriented toward development of technical and/or supervisory skills, may also be suggested or required by the department head, but there are no generally applicable requirements mandated by the AD.

4.2.2 Environment, Safety and Health (ES&H) training is provided to RFD employees, commensurate with the hazards associated with the work performed. The AD ES&H group maintains a data file which records the detail and extent of the training received by each person and is the basis for regular periodic assessment of on-going and repeat training requirements. Specific training requirements are determined by line managers. Copies of training records are kept by RF Department Head.

4.3 CRITERION 3 - QUALITY IMPROVEMENT

The description of Quality Improvement requirements and methods is fully covered in the FMI Project MPP, Section 4.3. This material applies equally to the FMI Project and the RFD responsibilities to the FMI Project and is not repeated here. Design improvements found advisable from years of operating and maintenance experience with the present RF Systems will be incorperated into the upgrade.

4.4 CRITERION 4 - DOCUMENTS AND RECORDS

4.4.1 The AD/MID (see the MID MPP) is responsible for implementing a documents and records management system for the FMI Project in order to insure that appropriate, auditable documents and records are retained and retrievable. The documentation requirements are described in ADAP-06-0019 and not repeated here.

4.4.2 Procedures for RF department Rf Systems will be used for MI RF development where applicable. A listing of existing RFD Procedures as well as copies of the Procedures themselves are maintained in the RF Department.

4.4.3 Individual project engineers in the RF Department are responsible for maintaining records of their work. Periodic informal reviews and discussions of their work will be made and necessary procedures and specifications will be entered into the appropriate MI or RFD Documentation system.

4.5 CRITERION 5 - WORK PROCESSES

4.5.1 The responsibilities of the FMI Project L3Ms, including the L3M for WBS 1.1.4 are as described in the FMI PMP (page 16). In particular the L3M for WBS 1.1.4 strives for effective human resource management within the RFD, with the goals of hiring and maintaining an efficient and effective work force.

4.5.2 The individual RFD worker is the first line in ensuring quality. The RFD Department Head who is also the L3M for WBS 1.1.4 is responsible for ensuring that people who are assigned to tasks have the appropriate academic qualification, professional certification, or skills and experience to carryout the work successfully.

4.5.3 The RFD Department Head who is also the L3M for WBS 1.1.4 is responsible for planning, authorizing, and specifying (to an appropriate level of detail) the conditions under which RFD work for the FMI Project is to be performed. The RFD Department Head who is also the L3M for WBS 1.1.4 will specify which work is sufficiently complex or involves sufficient hazard to be performed to written procedures. When written procedures are deemed appropriate they will be prepared, revised, approved, and distributed as ADDP's, as prescribed by ADAP-01-0001.

4.5.4 The RFD Department Head who is also the L3M for WBS 1.1.4 will define the performance objectives for which RFD personnel who work on the FMI Project will be held accountable. Criteria which define acceptable work performance and achievement of performance objectives (with the goal of acknowledging when work has been performed acceptably) and identifying of areas for improvement are also defined by the RFD Department Head who is also the L3M for WBS 1.1.4

4.5.5 The Fermilab contract with DOE defines a variety of management systems to be applied to material resources through the applicable DOE Orders and Code of Federal Regulations

(CFR). As noted in the FMI Project MPP (ADAP - 06 - 0019, Rev.0, page 7), the L3M for WBS 1.1.4 have the responsibility to insure that equipment items shall be identified and controlled to insure their proper use, and maintained to prevent their damage, loss or deterioration.

4.6 CRITERION 6 - DESIGN

4.6.1 The Fermilab Director requires that sound engineering/scientific principles and appropriate technical standards are incorporated into FMI designs to ensure that they will perform as intended. This policy is implemented by the FMI Project Manager and the L3Ms, including the L3M for WBS 1.1.4. The FMI Title I Design Report (the FMI design handbook) has been independently reviewed in order to assure compliance with the policy.

ES&H related design input and design review requirements to ensure compliance with facility ES&H requirements are specified in the FMI PMP. These include NEPA compliance, achieved by the preparation of the FMI Environmental Assessment (EA) which lead to a Finding of No Significant Impact (FONSI) by EH-1. In addition a FMI Preliminary Safety Analysis Report (PSAR) has been completed and approved, and a Technical Safety Review has taken place.

Appropriate design controls are incorporated in the FMI Configuration Management Plan (CMP) and the FMI Control System. Changes and modifications including their validation are controlled by FMI Engineering Change Request as defined in Procedure ADDP-MI-0002. Design records are incorporated into the FMI records management system (see Procedure ADDP-MI-0001).

4.7 CRITERION 7 - PROCUREMENT

4.7.1 The Fermilab contract with DOE specifies a variety of management controls to be applied to procurements and sub-contracts through the applicable DOE Orders, Department of Energy Acquisition Regulations (DEAR) and Federal Acquisition Regulations (FAR). Details of Fermilab's implementation of procurement and sub-contract management controls are to be found in Fermilab Quality Assurance Program (April 1, 1992), page 6.

4.7.2 Implementation of procurement management requirements by the FMI Project is described in the FMI PMP, in particular see Annex I of the PMP, "Advance Acquisition or Assistance Plan for the FMI." In addition the document "FMI ES&H Procedures for Construction" requires the inclusion of applicable ES&H specifications in sub-contracts.

4.8 CRITERION 8 - INSPECTION AND ACCEPTANCE TESTING

4.8.1 The RF Department Head who is also the L3M for WBS 1.1.4 will define the types of work that require formal inspections and acceptance testing. When an inspection or acceptance test is performed, the characteristics and processes to be inspected or tested, the inspection techniques to be used, the hold points, and the acceptance criteria are defined as appropriate. Properly calibrated and maintained measuring and test equipment are used for acceptance testing.

4.8.2 The Accelerator Readiness Reviews for the FMI Project will conform to the requirement of DOE Order 5480.25 (Accelerator Safety Order) when in force. The subsequent operation and maintenance of the FMI will conform to the Fermilab implementation of DOE Order 5480.19 (Conduct of Operations) and DOE Order 4330.4A (Maintenance Management Program).

4.9 CRITERION 9 - MANAGEMENT ASSESSMENT

4.9.1 The FMI PMP (in particular sections IV and IX) describes how FMI Project management periodically evaluates whether or not the FMI management infrastructure and resources are properly focused on achieving the FMI mission objectives. This includes a weekly project status meeting, chaired by the MID Department Head, which is attended by the FMI Project Manager, all MID Department staff, and all L3Ms, including the L3M for WBS 1.1.4. As the FMI Project progresses, every effort will be made to apply the Risk-Based Graded Approach to Implementation as specified in ADAP - 06 - 0001, Rev.1, Section 3.0, Pages 4 and 5.

4.9.2 The ES&H performance of the FMI Project including the work done by the RFD is periodically evaluated in accordance with the AD ES&H Self-Assessment Plan.

4.10 CRITERION 10 - INDEPENDENT ASSESSMENT

4.10.1 The Fermilab Director has assigned responsibility for performing independent assessment to the Quality Assurance, Conduct of Operations, and Self Assessment Offices in the directorate.

4.10.2 Independent assessments of the performance of the RFD by the AD are carried out as specified in the AD MPP.

5.0 EXTRA DIVISIONAL DISTRIBUTION

None.